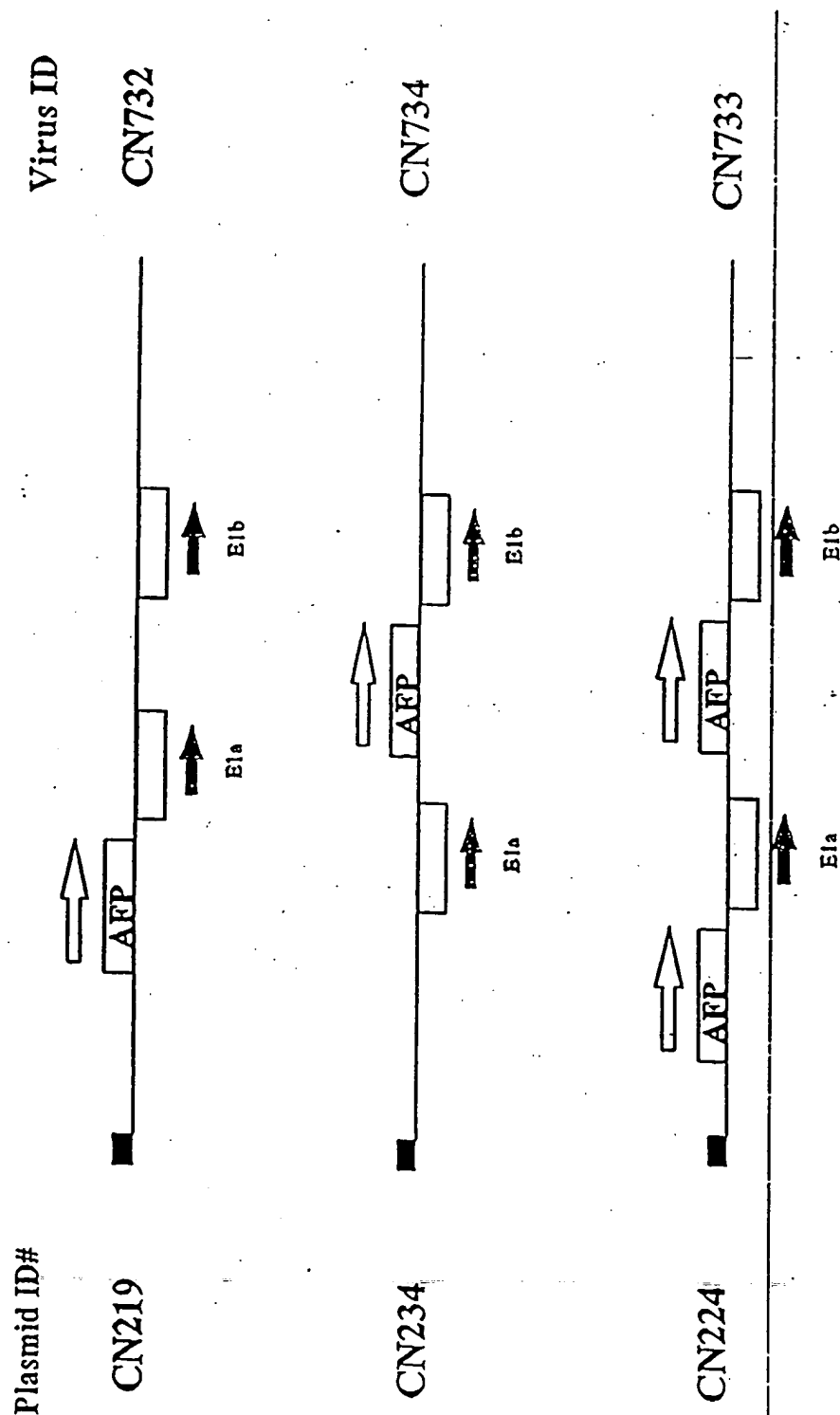
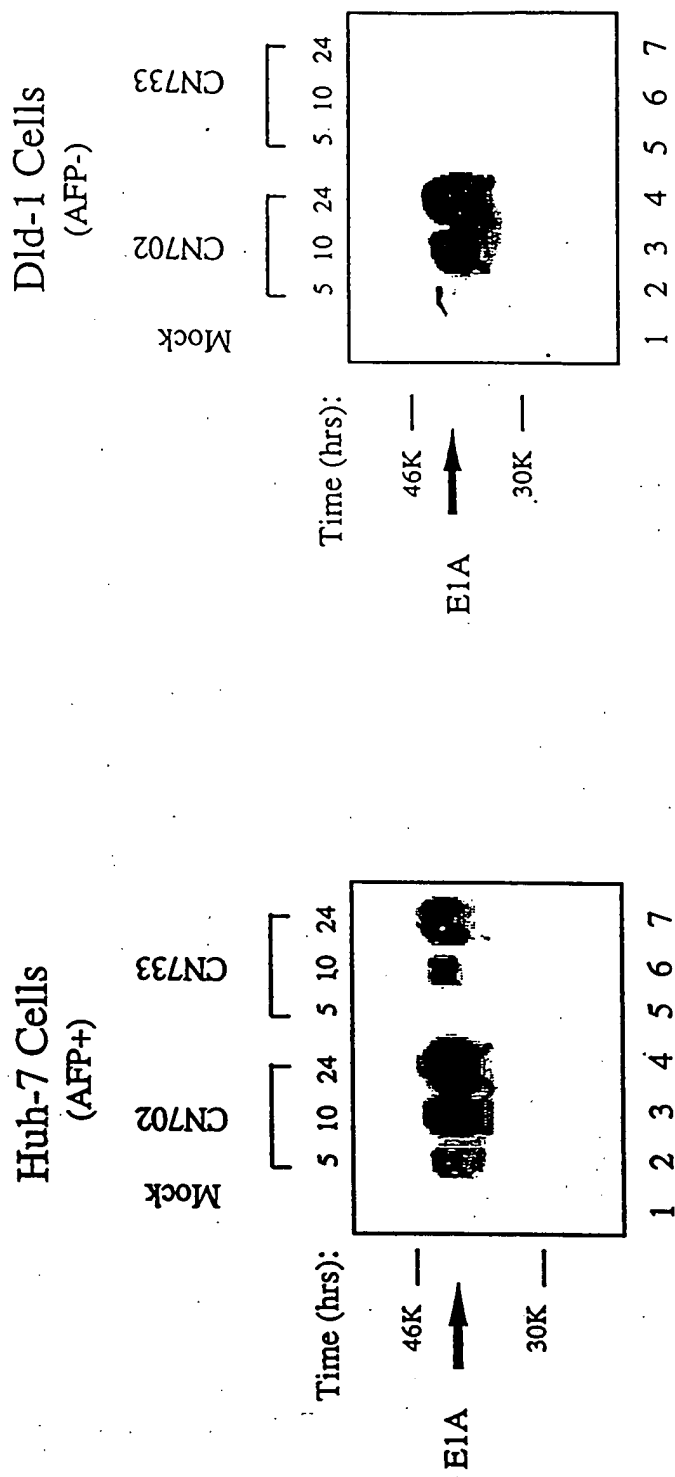


# FIGURE 1

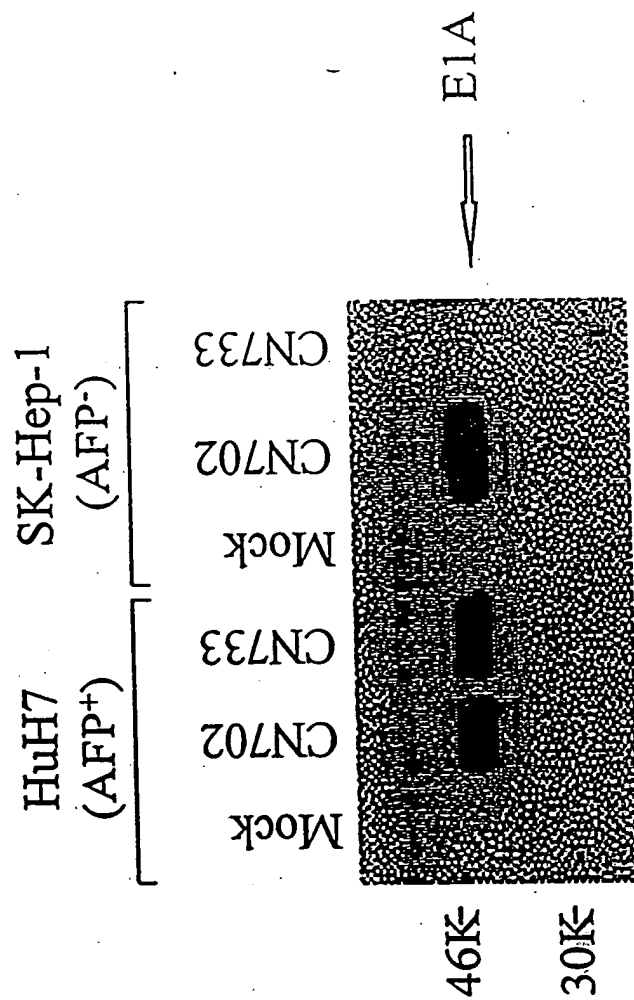
## AFP E1a and E1b Adenovirus Constructs



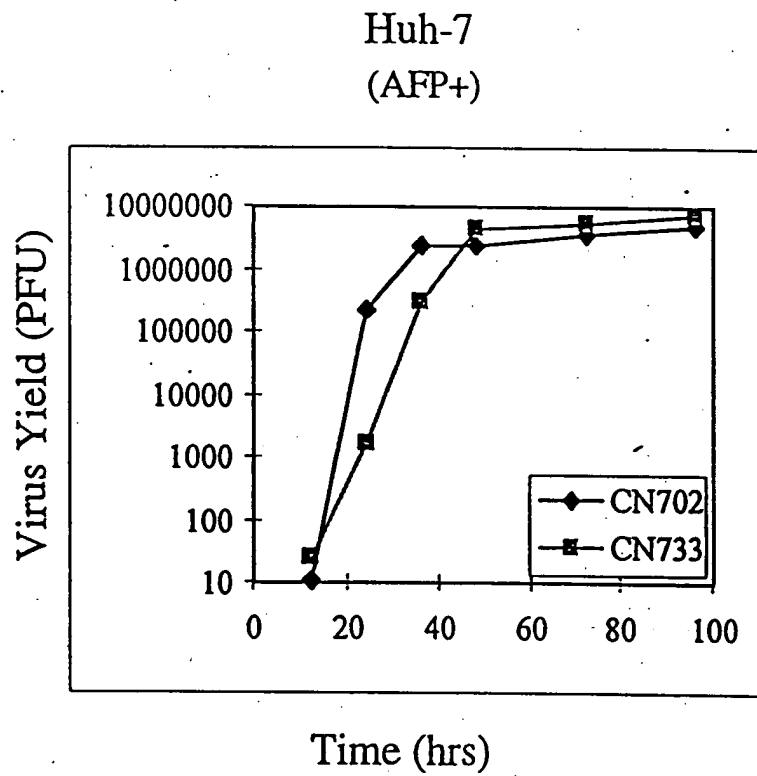
**FIGURE 2A**



**FIGURE 2B**



**FIGURE 3A**



**FIGURE 3B**

Sk-Hep-1  
(AFP-)

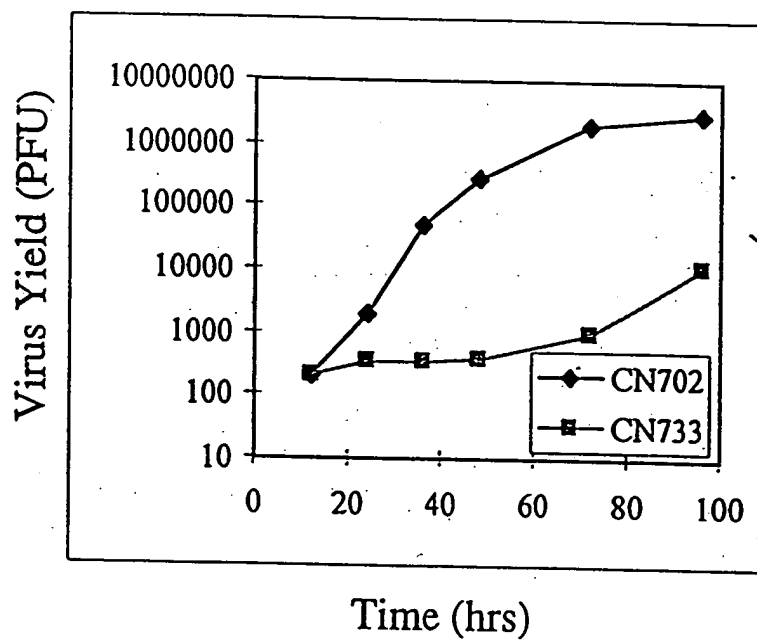


FIGURE 3C

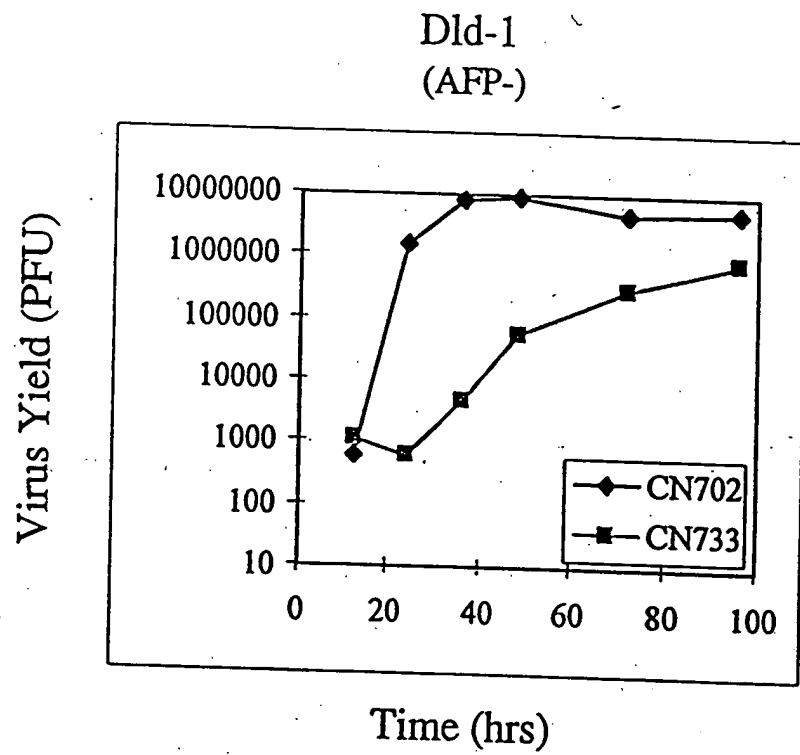


FIGURE 4A

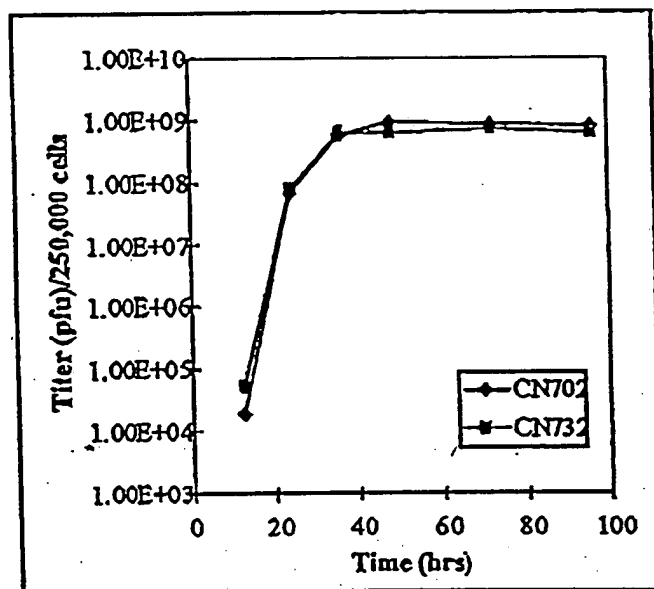


FIGURE 4B

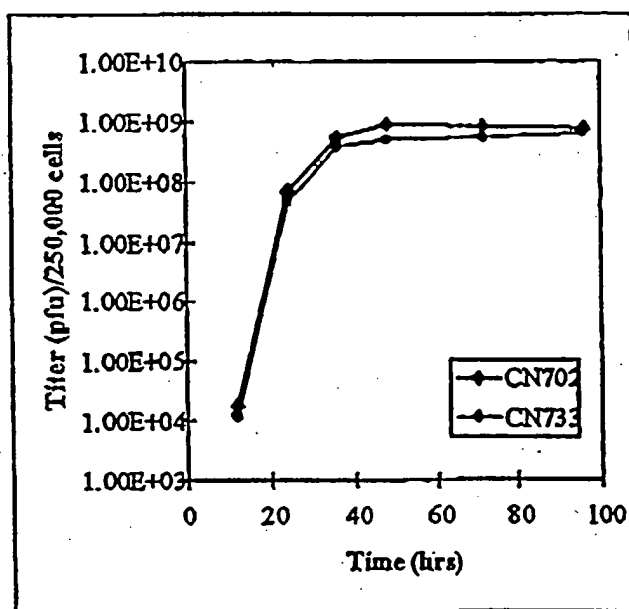




FIGURE 4C

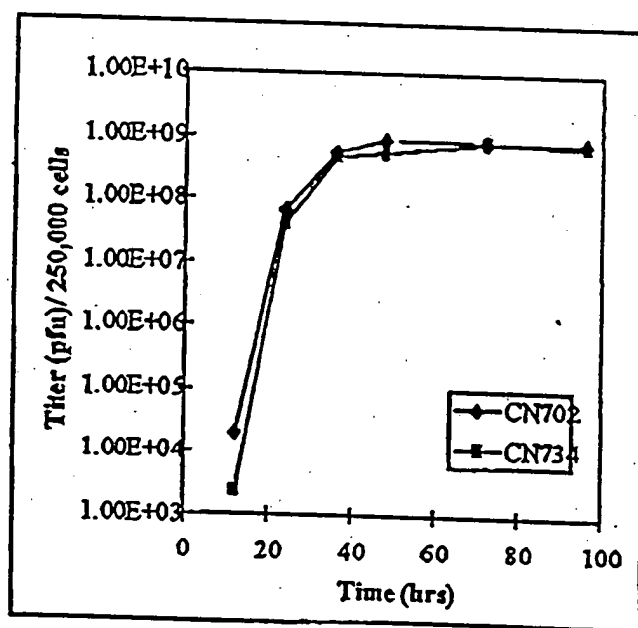


FIGURE 5A

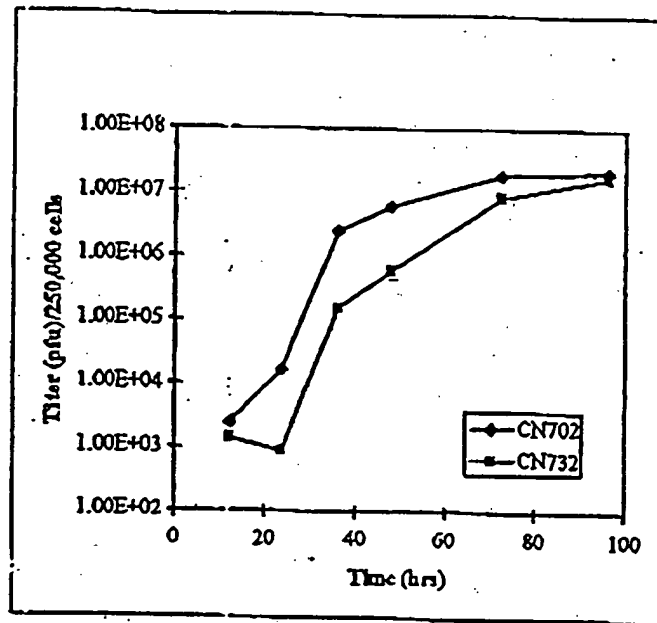
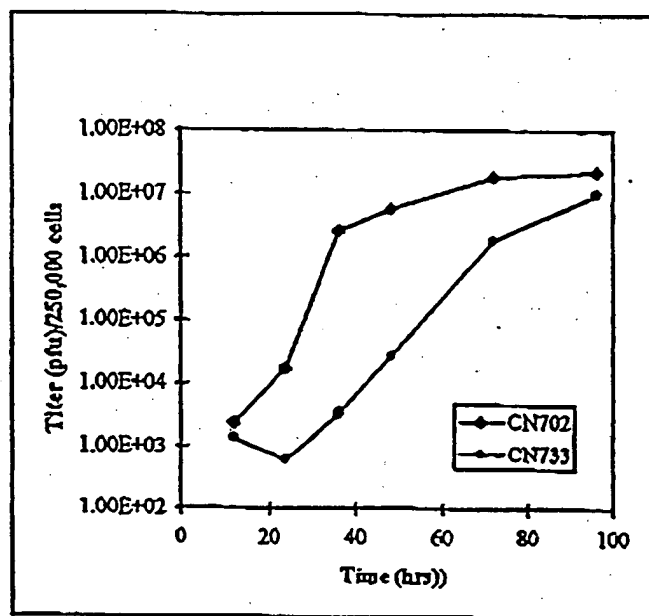
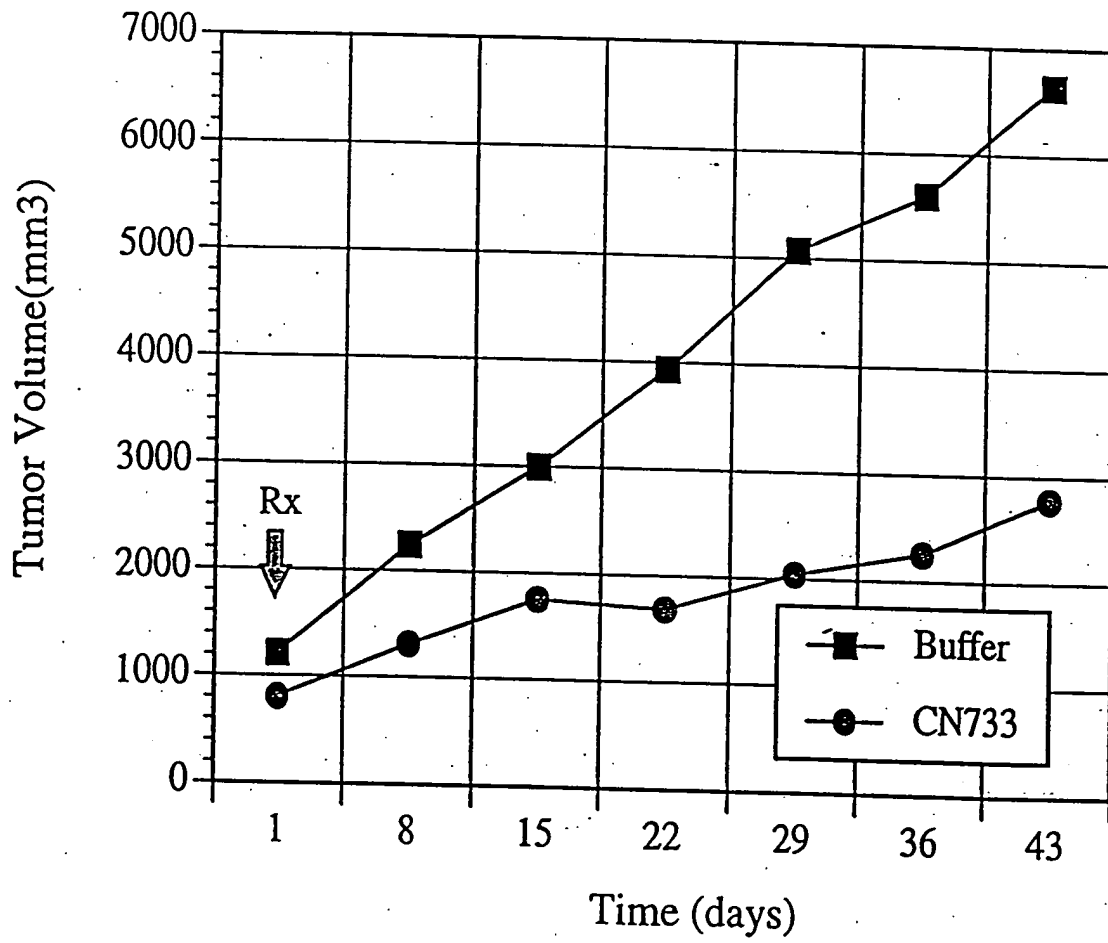


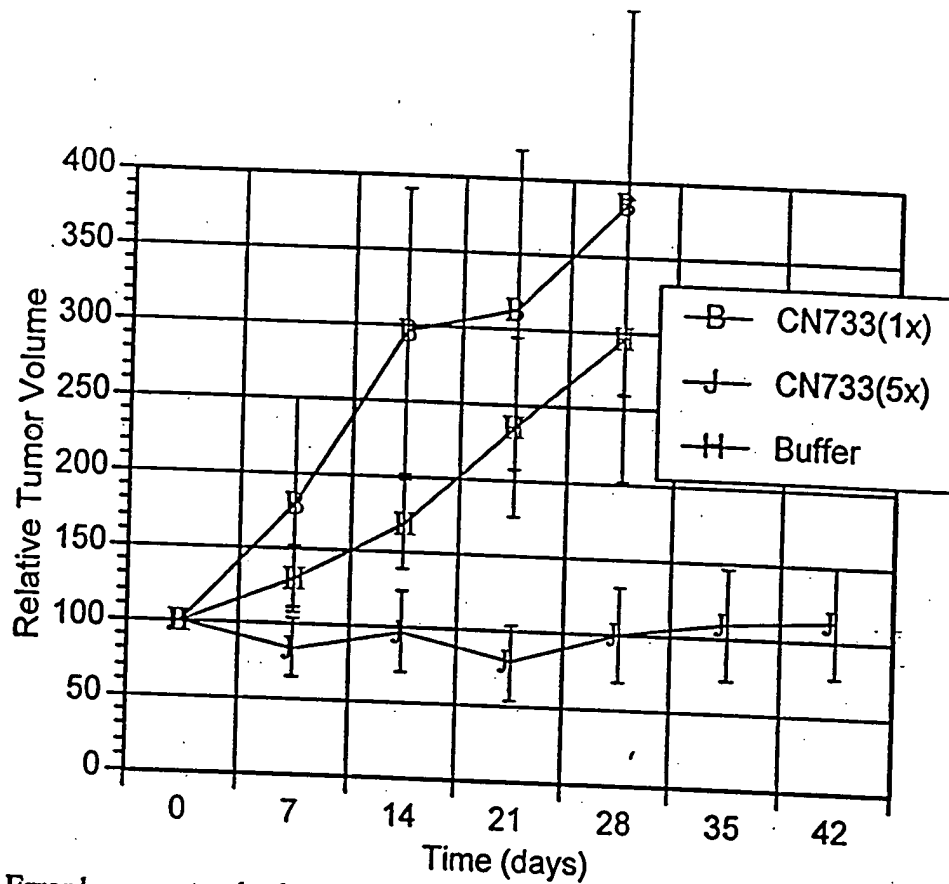
FIGURE 5B



**FIGURE 6A**



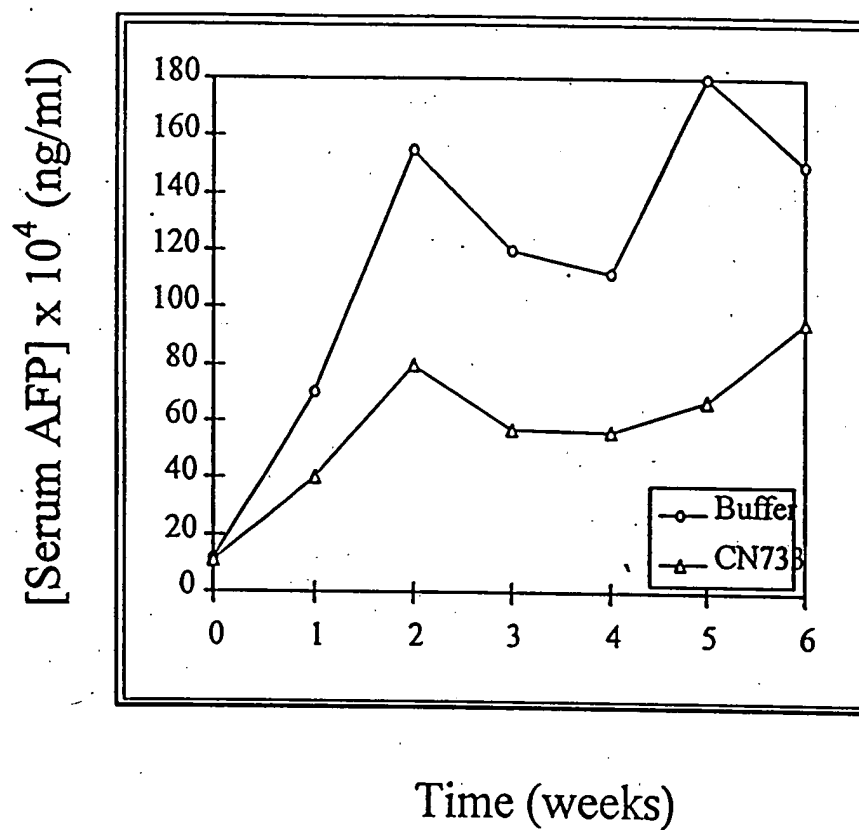
**FIGURE 6B**



Error bars = standard error

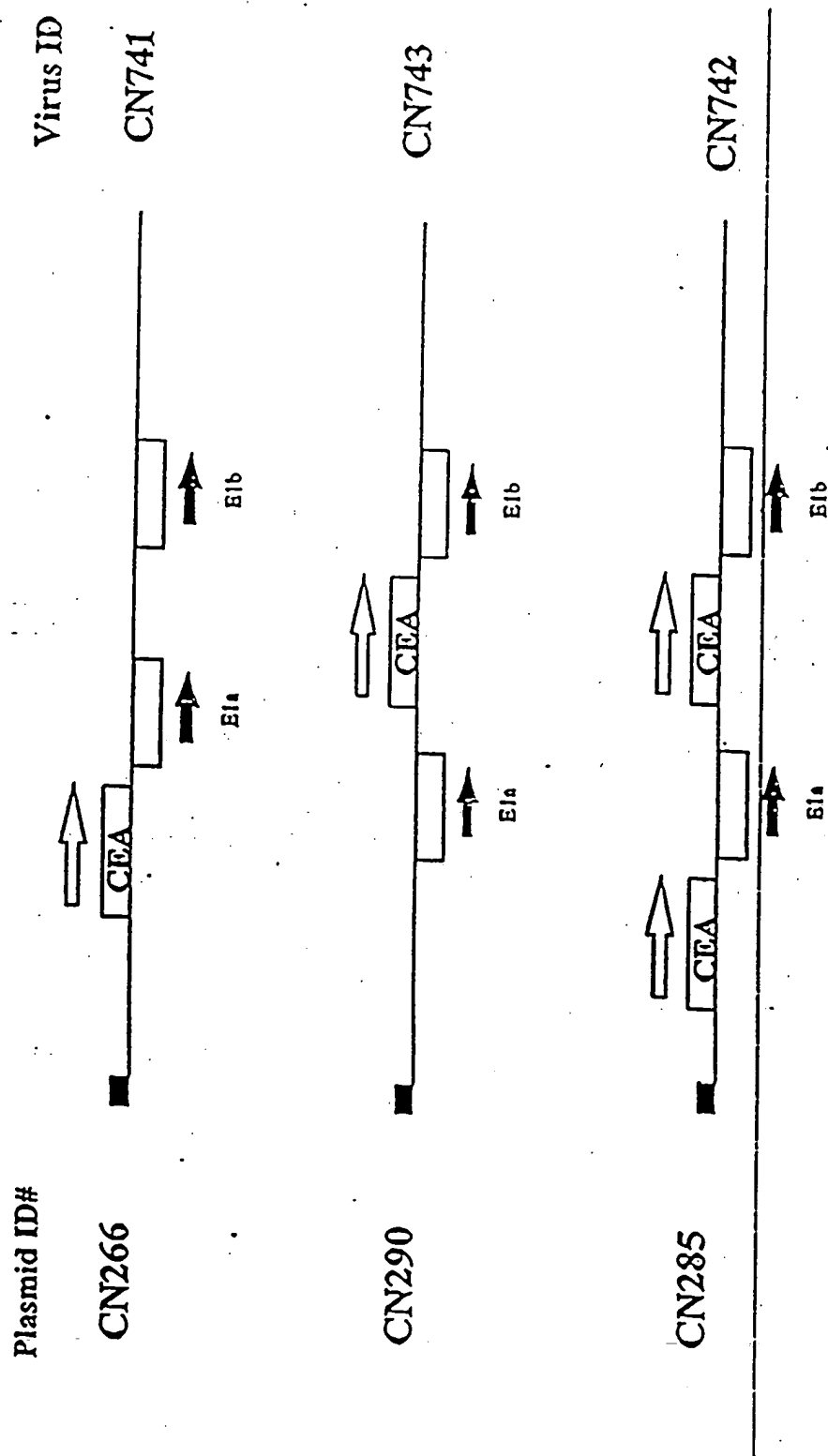
Animals from groups treated with a single dose of CN733 and buffer were sacrificed at 28 days because of excessive tumor burden

**FIGURE 7**



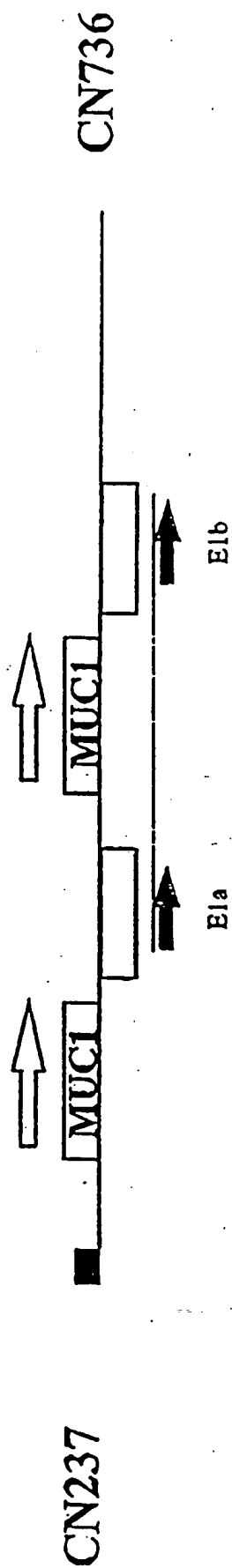
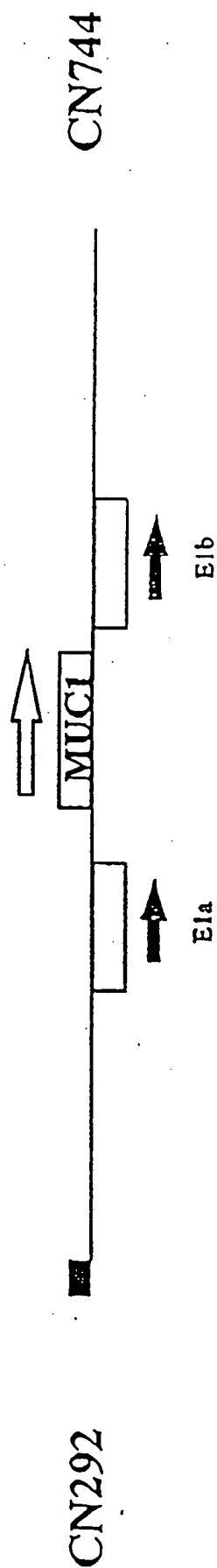
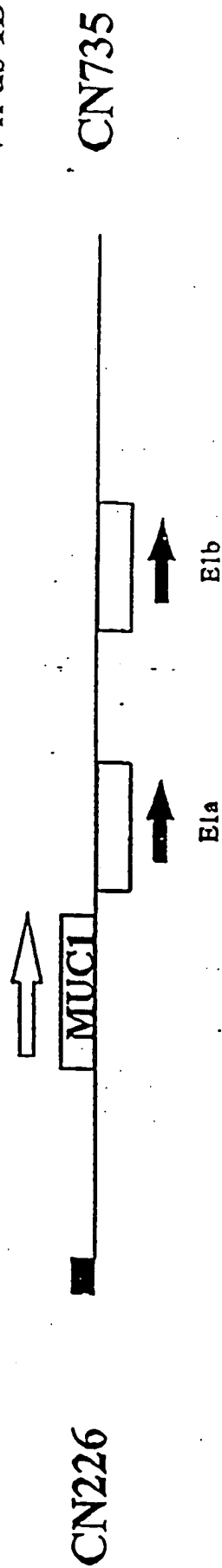
# FIGURE 8

## CEA E1a and E1b Adenovirus Constructs



**Plasmid ID#**

# Virus ID



## FIGURE 9



-426

5'-AAGCTTCCACAAGTGCATTTAGCCTCTCCAGTATTGCTGATGAATCCACAGT  
TCAGGTTCAATGGCGTTCAAAACTTGATCAAAAATGACCAGACTTTATATTCTTA  
CACCAACATCTATCTGATTGGAGGAATGGATAATAGTCATCATGTTTAAACATCT  
ACCATTCCAGTTAAGAAAATATGATAGCATCTTGTCTTAGTCTTTTCTTAATA

ARE-1

GGGACATAAAGCCCACAAATAAAAATATGCCTGAAGAATGGGACAGGCATTGG  
GCATTGTCCATGCCTAGTAAAGTACTCCAAGAACCTATTGTATACTAGATGACA

ARE-2

CAATGTCAATGTCTGTGTACAACCTGCCAAGTGGGATGCAAGACACTGCCCATG

+1

CAATCATCCTGAAAAGCAGCTATAAAAAGCAGGAAGCTACTCTGCACCTT

CAAT box

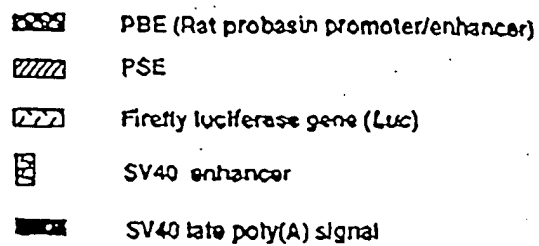
TATAA box

Transcription site

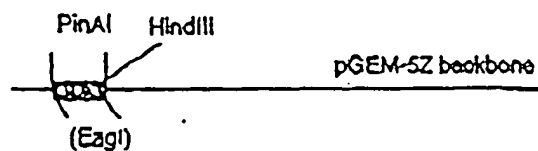
+26

GTCAGTGAGGTCCAGATACCTACAG-3'

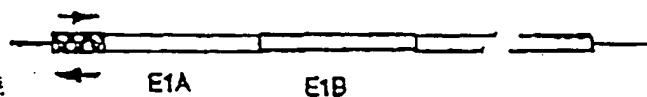
FIGURE 10



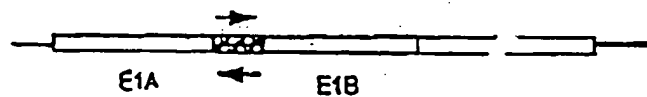
CN249  
 (CN250)  
 CN258  
 CN271



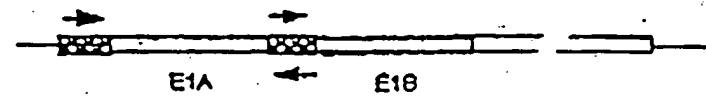
CN251  
 CN253



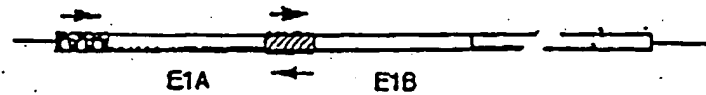
CN254 (CN275)  
 CN255 (CN276)



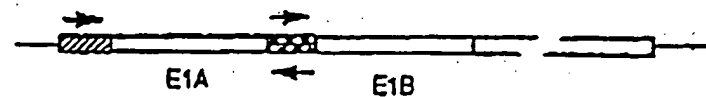
CN268  
 CN269



CN257  
 CN258



CN273  
 CN274



CN280



CN281

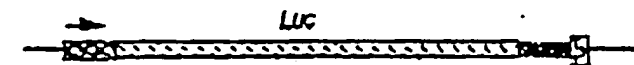


FIGURE 11

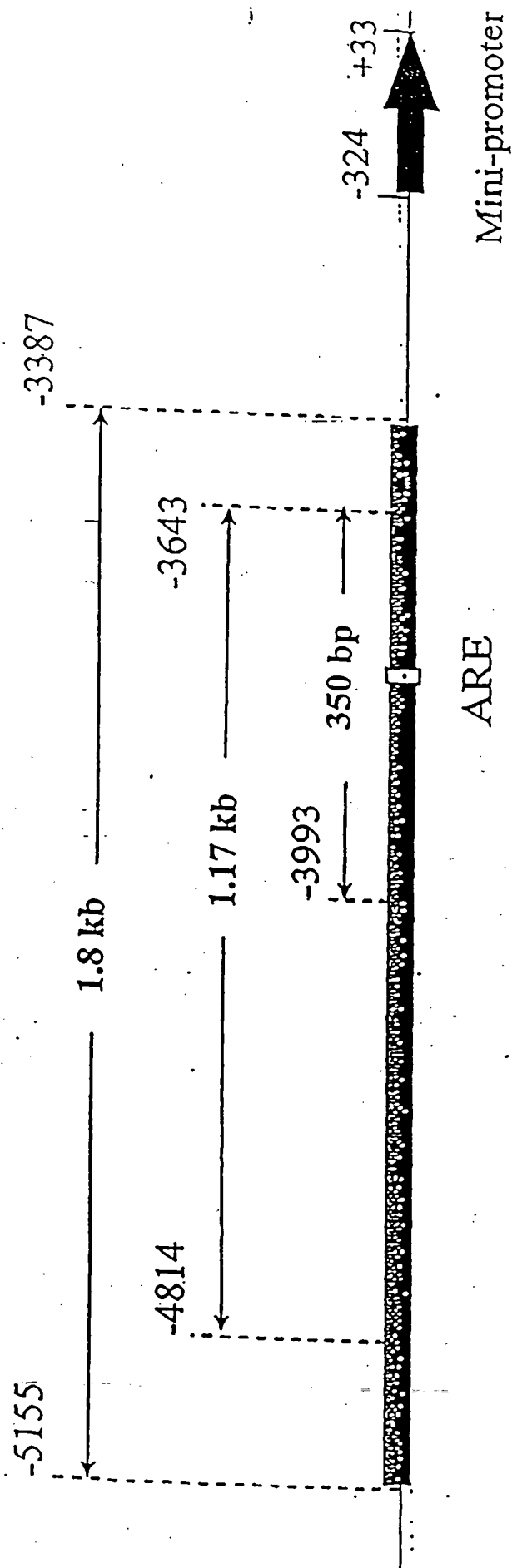


FIGURE 12

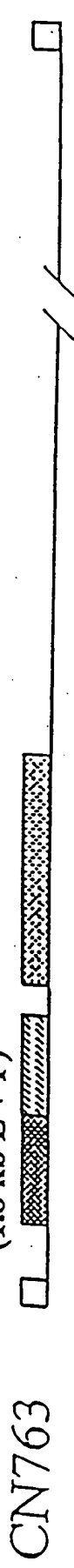
hKLK2 P



E1A E1B



hKLK2  
(1.8 kb E + P)



hKLK2  
(1.17 kb E + P)

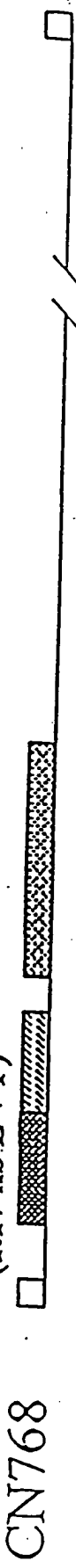


FIGURE 13

# FIGURE 14A

aagcttttta gtgctttaga cagtgaactg gtctgtctaa cccaagtgaac ctgggctcca	60
tactcagccc cagaagtga ggggtgaagct ggggtggagcc aaaccaggca agcctaccct	120
cagggctccc agtggcctga gaaccattgg acccaggacc cattacttct agggtaagga	180
aggtacaaac accagatcca accatgggtct ggggggacag ctgtcaaattg cctaaaaata	240
tacctgggag aggagcaggc aaactatcac tgccccaggt tctctgaaca gaaacagagg	300
ggcaacccaa agtccaaatc caggtgagca ggtgcaccaa atgcccagag atatgacgag	360
gcaagaagtg aaggaaccac ccctgcatca aatgttttgc atgggaagga gaaggggggtt	420
gctcatgttc ccaatccagg agaatgcatt tgggatctgc cttcttctca ctccttggtt	480
agcaagacta agcaaccagg actctggatt tggggaaaga cgtttatttg tggaggccag	540
tgatgacaat ccacgagggg cctaggtgaa gagggcagga aggctcgaga cactgggggac	600
tgagtgaata ccacacccat gatctgcacc acccatggat gctccttcat tgctcacctt	660
tctgttgata tcagatggcc ccattttctg taccttcaca gaaggacaca ggctagggtc	720
tgtgcatggc cttcatcccc gggggccatgt gaggacagca ggtgggaaag atcatgggtc	780
ctcctgggtc ctgcagggcc agaacattca tcaccatac tgacctccta gatgggaatg	840
gcttccctgg ggctgggcca acggggcctg ggcaggggag aaaggacgtc aggggacagg	900
gaggaagggt catcgagacc cagcctggaa ggttcttgc tctgaccatc caggatttac	960
ttccctgcat ctacctttgg tcattttccc tcagcaatga ccagctctgc ttctgatct	1020
cagcctccca ccctggacac agcaccacag tccctggccc ggctgcatcc acccaatacc	1080
ctgataaccc aggaccatt acttctaggg taaggagggt ccaggagaca gaagctgagg	1140
aaaggctctga agaagtcaca tctgtcctgg ccagagggga aaaaccatca gatgctgaac	1200
caggagaatg ttgaccacag aaagggaccg aggaccaag aaaggagtca gaccaccagg	1260
gtttgcctga gaggaaggat caaggccccg agggaaagca gggctggctg catgtgcagg	1320
acactgggtg ggcatatgtg tcttagattc tcctgaatt cagtgtccct gccatggcca	1380
gactctctac tcaggcctgg acatgctgaa ataggacaat ggccttgctc tctctccca	1440
ccatttgcca agagacataa aggacattcc aggacatgcc ttctggggag gtecagggtc	1500
tctgtctcac acctcagga ctgtagttac tgcacagcc atggtaggtg ctgatctcac	1560
ccagcctgtc caggcccttc cactctccac tttgtgacca tgtccaggac caccctcag	1620
atcctgagcc tgcaaatacc cccttgctgg gtgggtggat tcagtaaaca gtgagctcct	1680

# FIGURE 14B

atccagcccc	cagagccacc	tctgtcacct	tctgtctggg	catcatccca	ccttcacaag	1740
cactaaagag	catggggaga	cctggctagc	tgggtttctg	catcacaaag	aaaataatcc	1800
cccaggttcg	gattcccagg	gctctgtatg	tggagctgac	agacctgagg	ccaggagata	1860
gcagaggtca	gccctagggg	gggtgggtca	tccacccagg	ggacaggggt	gcaccagcct	1920
tgctactgaa	agggcctccc	caggacagcg	ccatcagccc	tgcctgagag	ctttgctaaa	1980
cagcagtcag	aggaggccat	ggcagtggct	gagctcctgc	tccaggcccc	aacagaccag	2040
accaacagca	caatgcagtc	cttccccaac	gtcacaggtc	accaaaggga	aactgaggtg	2100
ctacctaacc	ttagagccat	caggggagat	aacagcccaa	tttcccaaac	aggccagttt	2160
caatcccatg	acaatgacct	ctctgtcttc	attcttccca	aaataggacg	ctgattctcc	2220
cccaccatgg	atttctccct	tgtcccggga	gccttttctg	cccctatga	tctgggcact	2280
cctgacacac	acctcctctc	tgggtacata	tcagggtccc	tcactgtcaa	gcagtccaga	2340
aaggacagaa	ccttggacag	cgcccatctc	agcttcaccc	ttcctccttc	acagggttca	2400
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cggggttcag	atggagaagg	agcaggacag	gggatcccca	ggataggagg	accccagtgt	2760
ccccaccag	gcaggtgact	gatgaatggg	catgcagggt	cctcctgggc	tgggctctcc	2820
ctttgtccct	caggattcct	tgaaggaaca	tccggaagcc	gaccacatct	acctggtggg	2880
ttctggggag	tccatgtaaa	gccaggagct	tgtgttgcta	ggaggggtca	tggcatgtgc	2940
tgggggcacc	aaagagagaa	acctgagggc	aggcaggacc	tggctctgagg	aggcatggga	3000
gccagatgg	ggagatggat	gtcaggaaag	gctgccccat	cagggagggt	gatagcaatg	3060
gggggtctgt	gggagtgggc	acgtgggatt	ccctgggctc	tgccaagttc	cctcccatag	3120
tcacaacctg	gggacactgc	ccatgaaggg	gcgcctttgc	ccagccagat	gtgctggtt	3180
ctgcccatcc	actacctct	ctgctccagc	cactctgggt	ctttctccag	atgccctgga	3240
cagccctggc	ctgggcctgt	cccctgagag	gtgttgggag	aagctgagtc	tctggggaca	3300
ctctcatcag	agtctgaaag	gcacatcagg	aaacatccct	ggtctccagg	actaggcaat	3360

# FIGURE 14C

gaggaaaggg cccagctcc tccctttgcc actgagaggg tcgaccctgg gtggccacag	3420
tgactttctgc gtctgtccca gtcaccctga aaccacaaca aaaccccagc cccagaccct	3480
gcaggtacaa tacatgtggg gacagtctgt acccagggga agccagttct ctcttcctag	3540
gagaccgggc ctcagggctg tgcccggggc aggcgggggc agcacgtgcc tgtccttgag	3600
aactcgggac ctttaagggtc tctgctctgt gaggcacagc aaggatcctt ctgtccagag	3660
atgaaagcag ctcttgcccc tcctctgacc tcttcctcct tcccaaactct caaccaacaa	3720
ataggtgttt caaatctcat catcaaactct tcatccatcc acatgagaaa gcttaaaacc	3780
caatggattg acaacatcaa gagttggaac aagtggacat ggagatgtta cttgtggaaa	3840
tttagatgtg ttcagctatc gggcaggaga atctgtgtca aattccagca tggttcagaa	3900
gaatcaaaaa gtgtcacagt ccaaagtgtc aacagtgcag gggataaaac tgtggtgcat	3960
tcaaactgag ggatattttg gaacatgaga aaggaaggga ttgctgctgc acagaacatg	4020
gatgatctca cacatagagt tgaaagaaag gagtcaatcg cagaatagaa aatgatcact	4080
aattccacct ctataaagtt tccaagagga aaacccaatt ctgctgctag agatcagaat	4140
ggaggtgacc tgtgccttgc aatggctgtg agggtcacgg gagtgtcact tagtgcaggc	4200
aatgtgccgt atcttaactct gggcagggct ttcatgagca cataggaatg cagacattac	4260
tgctgtgttc attttacttc accggaaaag aagaataaaa tcagccgggc gcggtggctc	4320
acgcctgtaa tcccagcact ttagaaggct gaggtgggca gattacttga ggtcaggagt	4380
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tgggcatggt ggtgcgcgcc tgtaatccca gctactcggg aggctgaggc tggacaattg	4500
cttggaacca ggaagcagag gttgcagtga gccaagattg tgccactgca ctccagcttg	4560
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agaaagaaa gtataaaatc tctttgggtt aacaaaaaaaa gatccacaaa acaaacacca	4680
gctcttatca aacttacaca actctgccag agaacaggaa acacaaatac tcattaactc	4740
acttttgtgg caataaaacc ttcattgtcaa aaggagacca ggacacaatg aggaagtaaa	4800
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agctaagatt tactgcattg agttcattcc ccaggatgc aaggtgattt taacacctga	4920
aatcaatca ttgcctttac tacatagaca gattagctag aaaaaaatta caactagcag	4980
aacagaagca atttggcctt cctaaaattc cacatcatat catcatgatg gagacagtgc	5040
agacgccaat gacaataaaa agagggacct ccgtcacccg gtaaacatgt ccacacagct	5100

# FIGURE 14D

ccagcaagca	cccgctctcc	cagtgaatca	ctgtaacctc	ccctttaatc	agccccaggc	5160
aaggctgcct	gcgatggcca	cacaggctcc	aaccctgtgg	cctcaacctc	ccgcagaggc	5220
tctccttttg	ccaccccatg	gggagagcat	gaggacaggg	cagagccctc	tgatgccac	5280
acatggcagg	agctgacgcc	agagccatgg	gggctggaga	gcagagctgc	tggggtcaga	5340
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gaccaagccc	aggaccaatg	tggaaggaa	gaaacagcat	cccctttagt	gatggaaccc	5700
aaggtcagtg	caaagagagg	ccatgagcag	ttaggaaggg	tggccaacc	tacagcacia	5760
accatcatct	atcataagta	gaagccctgc	tccatgaccc	ctgcatttaa	ataaacgttt	5820
gttaaagtga	tcaaattccc	tcacccatgag	agctcacctg	tgtgtaggcc	catcacacac	5880
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tggacagcac	caggcaggct	tcacaggcag	agcaaacagc	gtgaatgacc	catgcagtgc	6000
cctgggcccc	atcagctcag	agaccctgtg	agggctgaga	tggggctagg	caggggagag	6060
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tatctcaa	ttccctaagca	caagctagca	ccctttaaat	caggaagttc	agtcactcct	6540
ggggtcctcc	catgccccca	gtctgacttg	caggtgcaca	gggtggctga	catctgtcct	6600
tgctcctcct	cttggctcaa	ctgccgcccc	tcctgggggt	gactgatggg	caggacaagg	6660
gacccatagag	ctggccccat	gattgacagg	aaggcaggac	ttggcctcca	ttctgaagac	6720
taggggtgtc	aagagagctg	ggcatccac	agagctgcac	aagatgacgc	ggacagaggg	6780



# FIGURE 14E

tgacacaggg ctcagggtt cagacgggtc gggagggtca gctgagagtt cagggacaga	6840
cctgaggagc ctcagtggga aaagaagcac tgaagtggga agttctggaa tgttctggac	6900
aagcctgagt gctctaagga aatgctccca ccccgatgta gcctgcagca ctggacggtc	6960
tgtgtacctc cccgctgccc atcctctcac agccccgcc tctagggaca caactcctgc	7020
cctaacatgc atctttcctg tctcattcca cacaaaagg cctctgggggt cctgtttctg	7080
cattgcaagg agtggagggtc acgttcccac agaccacca gcaacagggt cctatggagg	7140
tgcggtcagg aggatcacac gtcccccat gccaggggga ctgactctgg gggtgatgga	7200
ttggcctgga ggccactgggt cccctctgtc cctgagggga atctgcaccc tggaggctgc	7260
cacatccctc ctgattcttt cagctgaggg cccttcttga aatcccaggg aggactcaac	7320
ccccactggg aaaggcccag tgtggacggt tccacagcag ccagctaag gcccttggac	7380
acagatcctg agtgagagaa cctttaggga cacagggtga cggccatgtc ccagtgccc	7440
acacagagca ggggcatctg gaccctgagt gtgtagctcc cgcgactgaa ccagccctt	7500
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ggagcaggta aggggaagcc ccaggagggc cgggggaggg tacagcagag ctctccactc	7920
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gcaccatctg gggactctac ccactaaatg ccagcaggac tccctccca agctctaaca	8040
accaacaatg tctccagact ttccaaatgt cccctggaga gcaaaattgc ttctggcaga	8100
atcactgatc tacgtcagtc tctaaaagtg actcatcagc gaaatccttc acctcttggg	8160
agaagaatca caagtgtgag aggggtagaa actgcagact tcaaatctt tccaaaagag	8220
ttttacttaa tcagcagttt gatgtcccag gagaagatac atttagagtg tttagagttg	8280
atgccacatg gctgcctgta cctcacagca ggagcagagt gggttttcca agggcctgta	8340
accacaactg gaatgacact cactgggtta cattacaaag tggaatgtgg ggaattctgt	8400
agactttggg aagggaatg tatgacgtga gccacagcc taaggcagtg gacagtccac	8460
tttgaggctc tcaccatcta ggagacatct cagccatgaa catagccaca tctgtcatta	8520

# FIGURE 14F

gaaaacatgt tttattaaga ggaaaaatct aggctagaag tgctttatgc tcttttttct	8580
ctttatgttc aaattcatat acttttagat cattccttaa agaagaatct atccccctaa	8640
gtaaatgtta tcaactgactg gatagtgttg gtgtctcact cccaaccctt gtgtgggtgac	8700
agtgccctgc ttccccagcc ctgggccctc tctgattcct gagagctttg ggtgctcctt	8760
cattaggagg aagagaggaa ggggtgtttt aatattctca ccattcaccc atccacctct	8820
tagacactgg gaagaatcag ttgccactc ttggatttga tctcgaatt aatgacctct	8880
atctctgtcc cttgtccatt tcaacaatgt gacaggccta agagggtgcct tctccatgtg	8940
atttttgagg agaaggttct caagataagt tttctcacac ctctttgaat tacctccacc	9000
tgtgtcccca tcaccattac cagcagcatt tggacccttt ttctgttagt cagatgcttt	9060
ccacctcttg aggggtgtata ctgtatgctc tctacacagg aatatgcaga ggaaatagaa	9120
aaagggaaat cgcattacta ttcagagaga agaagacctt tatgtgaatg aatgagagtc	9180
taaaatccta agagagccca tataaaatta ttaccagtgc taaaactaca aaagttacac	9240
taacagtaaa ctagaataat aaaacatgca tcacagttgc tggtaaagct aaatcagata	9300
tttttttctt agaaaaagca ttccatgtgt gttgcagtga tgacaggagt gcccttcagt	9360
caatatgctg cctgtaattt ttgttccctg gcagaatgta ttgtcttttc tccctttaa	9420
tcttaaagtc aaaactaaag gcagctcctg ggccccctcc ccaaagtcag ctgcctgcaa	9480
ccagccccac gaagagcaga ggcctgagct tccctggcca aaataggggg ctagggagct	9540
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ctggaggggtg gtgagcctca ctgggtggcct gatgcttacc ttgtgccctc acaccagtgg	9660
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agaaccctgc ctgggggtcta caacacatat ggactgtgag caccaagtcc agccctgaat	9840
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agcgaggctt ggagggtgctt cgccacaagg cagccccaat ttgtggggag tttcttgga	9960
cctggtagtg gtgaggagcc ttgggaccct caggattact ccccttaagc atagtgggga	10020
cccttctgca tccccagcag gtgccccgct cttcagagcc tctctctctg aggtttaccc	10080
agaccctgc accaatgaga ccatgctgaa gcctcagaga gagagatgga gctttgacca	10140
ggagccgctc ttccttgagg gccagggcag ggaaagcagg aggcagcacc aggagtggga	10200

# FIGURE 14G

acaccagtgt ctaagcccct gatgagaaca ggggtggtctc tcccatatgc ccataccagg	10260
cctgtgaaca gaatcctcct tctgcagtga caatgtctga gaggacgaca tgtttcccag	10320
cctaacgtgc agccatgccc atctaccacac tgcctactgc aggacagcac caaccaggga	10380
gctgggaagc tgggagaaga catggaatac ccatggcttc tcaccttctt ccagtccagt	10440
gggcaccatt tatgcctagg acaccacact gccggcccca ggctcttaag agttaggtca	10500
cctaggtgcc tctgggaggc cgaggcagga gaattgcttg aaccggggag gcagaggttg	10560
cagtgaagccg agatcacacc actgcactcc agcctgggtg acagaatgag actctgtctc	10620
aaaaaaaaag agaaagatag catcagtggc taccaagggc taggggcagg ggaaggtgga	10680
gagttaatga ttaatagtat gaagtttcta tgtgagatga tgaaaatgtt ctggaaaaaa	10740
aaatatagtg gtgaggatgt agaataattgt gaatataatt aacggcattt aattgtacac	10800
ttaacatgat taatgtggca tattttatct tatgtatttg actacatcca agaaacactg	10860
ggagagggaa agcccaccat gtaaaataca cccaccctaa tcagatagtc ctcattgtac	10920
ccaggtacag gccctcatg acctgcacag gaataactaa ggatttaagg acatgaggct	10980
tcccagccaa ctgcaggtgc acaacataaa tgtatctgca aacagactga gagtaaagct	11040
gggggcacaa acctcagcac tgccaggaca cacacccttc tcgtggattc tgactttatc	11100
tgacccggcc cactgtccag atcttgttgt gggattggga caaggagggt cataaagcct	11160
gtccccaggg cactctgtgt gagcacacga gacctccca cccccacc gttaggtctc	11220
cacacataga tctgaccatt aggcattgtg aggaggactc tagcgcgggc tcagggatca	11280
caccagagaa tcaggtacag agaggaagac ggggctcgag gagctgatgg atgacacaga	11340
gcagggttcc tgcagtccac aggtccagct caccctgggtg taggtgcccc atccccctga	11400
tccaggcatc cctgacacag ctccctcccg gagcctctc ccaggtgaca catcagggtc	11460
cctcactcaa gctgtccaga gagggcagca ccttggacag cgcccacccc acttcactct	11520
tcctccctca cagggtcag ggctcagggc tcaagtctca gaacaaatgg cagaggccag	11580
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agaggaggac acaggctctg tggggctgca gccaggatg ggactaagtg tgaagacatc	11760
tcagcaggtg aggccaggtc ccatgaacag agaagcagct cccacctccc ctgatgcacg	11820
gacacacaga gtgtgtggtg ctgtgcccc agagtcgggc tctctgttc tgggtcccag	11880
ggagtgaaga gtgaggttga cttgtccctg ctctctctg ctaccccaac attcaccttc	11940

# FIGURE 14H

tcctcatgcc cctctctctc aaatatgatt tggatctatg tccccgcca aatctcatgt	12000
caaattgtaa accccaatgt tggaggtggg gccttgtag aagtgattgg ataatgcggg	12060
tggattttct gctttgatgc tgtttctgtg atagagatct cacatgatct ggttgtttaa	12120
aagtgtgtag cacctctccc ctctctctct ctctctctta ctcatgctct gccatgtaag	12180
acgttcctgt ttccccttca ccgtccagaa tgattgtaag ttttctgagg cctccccagg	12240
agcagaagcc actatgcttc ctgtacaact gcagaatgat gagcgaatta aacctctttt	12300
ctttataaat taccagatct cagggtatttc tttatagcaa tgcgaggaca gactaataca	12360
atcttctact ccagatccc cgcacacgct tagccccaga catcactgcc cctgggagca	12420
tgcacagcgc agcctcctgc cgacaaaagc aaagtcacaa aaggtgacaa aaatctgcat	12480
ttggggacat ctgattgtga aagagggagg acagtacact tgtagccaca gagactgggg	12540
ctcaccgagc tgaaacctgg tagcactttg gcataacatg tgcattgaccc gtgttcaatg	12600
tctagagatc agtgttgagt aaaacagcct ggtctggggc cgctgctgtc cccacttccc	12660
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acctccctca gccgggcccc cagcccagca gggtcacccc tcaccgggt cacctcggcc	12780
caogtctcc tcgccctccg agtctctcac acggactctg tcagctctc cctgcagcct	12840
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aggcagctcc tgtccctac accccctcct tccccgggt cagctgaaag ggcgtctccc	12960
agggcagctc cctgtgatct ccaggacagc tcagtctctc acaggctccg acgcccccta	13020
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gcgcctgtct cccggttaca ggaaaactct gtgacaggga ccacgtctgt cctgctctct	13140
gtggaatccc agggcccagc ccagtgcctg acacggaaca gatgctccat aaatactggt	13200
taaatgtgtg ggagatctct aaaaagaagc atatcacctc cgtgtggccc ccagcagtca	13260
gagtctgttc catgtggaca caggggcact ggcaccagca tgggaggagg ccagcaagtg	13320
cccgcggtg cccaggaat gaggcctcaa ccccagagc ttcagaaggg aggacagagg	13380
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cctcttgccc tccagggggg gacattgcac acagacatca ctcaggaaac ggattcccct	13560
ggacaggaac ctggctttgc taaggaagtg gaggtggagc ctggtttcca tcccttgctc	13620

# FIGURE 14I

caacagaccc	ttctgatctc	tcccacatac	ctgctctgtt	cctttctggg	tcctatgagg	13680
accctgttct	gccaggggtc	cctgtgcaac	tccagactcc	ctcctggtac	caccatgggg	13740
aaggtggggg	gatcacagga	cagtcagcct	cgcagagaca	gagaccaccc	aggactgtca	13800
gggagaacat	ggacaggccc	tgagccgcag	ctcagccaac	agacacggag	agggaggggc	13860
cccctggagc	cttccccaag	gacagcagag	cccagagtca	cccacctccc	tccaccacag	13920
tcctctcttt	ccaggacaca	caagacacct	ccccctccac	atgcaggatc	tggggactcc	13980
tgagacctct	gggcctgggt	ctccatccct	gggtcagtg	cggggttggt	ggtactggag	14040
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acctctgtca	ccttctgtt	gggcatcatc	ccaccttccc	agagccctgg	agagcatggg	14160
gagaccggg	accctgctgg	gtttctctgt	cacaaaggaa	aataatcccc	ctggtgtgac	14220
agaccaagg	acagaacaca	gcagaggtca	gcactgggga	agacaggttg	tcctcccagg	14280
ggatgggggt	ccatccacct	tgccgaaaag	atttgtctga	ggaactgaaa	atagaaggga	14340
aaaaagagga	gggacaaaag	aggcagaaat	gagaggggag	gggacagagg	acacctgaat	14400
aaagaccaca	cccatgaccc	acgtgatgct	gagaagtact	cctgccctag	gaagagactc	14460
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tggaactcaa	gctcttctcc	acagaggagg	acagagcaga	cagcagagac	catggagtct	14580
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cgcctaccgc	ggacattgga	aaataagccc	caggctgtgg	agggccctgg	gaaccctcat	15000
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## FIGURE 15A

aagcttctag ttttcttttc ccggtgacat cgtggaaagc actagcatct ctaagcaatg 60  
atctgtgaca atattcacag tgtaatgcca tccagggaaac tcaactgagc cttgatgtcc 120  
agagattttt gtgttttttt ctgagactga gtctcgctct gtgccaggct ggagtgcagt 180  
ggtgcaacct tggtcactg caagctccgc ctctggggtt cagccattc tctgcctca 240  
gcctcctgag tagctgggac tacaggcacc cgccaccag cctggctaata ttttttgtat 300  
ttttagtaga gatgggggtt cactgtgtta gccaggatgg tctcagtctc ctgacctcgt 360  
gatctgcccc ccttgacctc ccaaagtgtc gggatgacag gcgtgagcca ccgcgcctgg 420  
ccgatatcca gagatttttt ggggggctcc atcacacaga catgttgact gtcttcatgg 480  
ttgactttta gtatccagcc cctctagaaa tctagctgat atagtgtggc tcaaaaactt 540  
cagcacaat cacaccgtta gactatctgg tgtggcccaa accttcaggt gaacaaaggg 600  
actctaactc ggcaggatat tccaaagcat tagagatgac ctcttgcaaa gaaaaagaaa 660  
tggaaaagaa aaagaaagaa aggaaaaaaa aaaaaaaaaa gagatgacct ctcaggctct 720  
gaggggaaac gcctgaggtc tttgagcaag gtcagtcctc tgttgacag tctccctcac 780  
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ctggcctcat ttgatggaga aagtggctgt ggctcagaaa ggggggacca ctagaccagg 1020  
gacactctgg atgctgggga ctccagagac catgaccact caccaactgc agagaaatta 1080  
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ggtgaccaga gcagtctagg tggatgctgt gcagaagggg tttgtgccac tggtgagaaa 1560  
cctgagatta ggaatcctca atcttatact gggacaactt gcaaactgc tcagcctttg 1620  
tctctgatga agatattatc ttcattgatc tggattgaaa acagacctac tctggaggaa 1680

## FIGURE 15B

catattgtat cgattgtcct tgacagtaaa caaatctgtt gtaagagaca ttatctttat 1740  
 tatctaggac agtaagcaag cctggatctg agagagatat catcttgcaa ggatgcctgc 1800  
 ttacaaaca tccttgaaac aacaatccag aaaaaaaaaag gtgttgctgt ctttgctcag 1860  
 aagacacaca gatacgtgac agaaccatgg agaattgcct cccaacgctg ttcagccaga 1920  
 gccttccacc ctgtctgca ggacagtctc aacgttccac cattaaatac ttcttctatc 1980  
 acatcctgct tctttatgcc taaccaaggt tctaggtccc gatcgactgt gtctggcagc 2040  
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 gctgtgacta tcctgcagc gtgcctctcc agccacctgc caaccgtaga gctgcccattc 2700  
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 ctggaatcat agggatccag gactcaaaag tgctagagaa tggccatattg tcaccatcca 2820  
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 agtagggggg ggaggcacgg actcctgtga ggtcacagcc aaggagagcat catcatgggt 3060  
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 atcagattgg agttgggtta gataaagtgc tgggtatagg attgagagtg gagtatgaag 3240  
 accagttagg atggaggatc agattggagt tgggttagag atggggtaaa attgtgctcc 3300  
 ggatgagttt gggattgaca ctgtggaggt ggtttgggat ggcattggctt tgggatggaa 3360

# FIGURE 15C

atagatttgt tttgatgttg gctcagacat ccttggggat tgaactggg atgaagctgg 3420  
 gtttgatttt ggaggtagaa gacgtggaag tagctgtcag atttgacagt ggccatgagt 3480  
 tttgtttgat ggggaatcaa acaatggggg aagacataag ggttggttg ttaggttaa 3540  
 ttgcgttggg ttgatggggt cggggctgtg tataatgcag ttggattggt ttgtattaaa 3600  
 ttgggttggg tcaggttttg gttgaggatg agttgaggat atgcttgggg acaccggatc 3660  
 catgaggttc tcaactggagt ggagacaaac ttcctttcca ggatgaatcc agggaagcct 3720  
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 agatggtcct aaattgtgat tatctatata cacttctgtc tccctcactg tgcttggagt 3840  
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 tttttttga gacagagtct cactctgttg cccaggctgg agtgagtg cgcagtctcg 3960  
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 ggttgcaatg agccgagatt gcgccactgc actccagcct ggtgacaga gtgagactct 4860  
 gtctcaaaaa aaaaaaattt ttttttttt ttgtagaga tggatcttgc tttgtttctc 4920  
 tggttggcct tgaactcctg gtttcaagt atctctctac cttggcctcg gaaagtgttg 4980  
 ggattacagg cgtgagccac catgactgac ctgtcgtaa tcttgaggta cataaacctg 5040  
 gctcctaaag gctaaaggct aaatatttgt tggagaaggc gcattggatt ttgcatgagg 5100



## FIGURE 15D

atgattctga cctgggaggg caggtcagca ggcattctctg ttgcacagat agagtgtaca 5160  
ggtctggaga acaaggagtg gggggttatt ggaattccac attgtttgct gcacgttgga 5220  
ttttgaaatg ctagggaact ttgggagact catatttctg ggctagagga tctgtggacc 5280  
acaagatctt tttatgatga cagtagcaat gtatctgtgg agctggattc tgggttggga 5340  
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agttctagtt tctggtctca gagtgggtgca gggatcaggg agtctcacia tctcctgagt 5460  
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gatctagtaa ttgcagaaca gcaagtgcta gctctccctc ccttccaca gctctgggtg 5700  
gggagggggg ttgtccagcc tccagcagca tggggagggc cttggtcagc ctctgggtgc 5760  
cagcagggca ggggcggagt cctggggaat gaaggtttta tagggctcct gggggaggct 5820  
ccccagcccc aagctt 5836

## FIGURE 16A

gaattcagaa ataggggaag gttgaggaag gacactgaac tcaaagggga tacagtgatt 60  
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ccacagagat tcacagccta gggcaggagg aactgtacg ccaggcagaa tgacatggga 240  
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agaagccttt gagacccttt aggggtacaag tactgaggca gcaaataaaa tgaaatctta 540  
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taattaaatt ttactttatt ttatcttaag ttctgggcta catgtgcagg acgtgcagct 780  
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## FIGURE 16B

gcagctgtag ccttttctag ataatacact attgtcatac atcgcttaag cgagtgtaaa 1740  
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tcaagtgatt ttcttacctc agcctcccga gtagctggga ttacaggtgc gtgccaccac 1920  
accgggctaa tttttgtatt tttttagag acggggtttt gccatgttg ccaggctggt 1980  
cttgaactcc tgacatcagg tgatccacct gccttggcct cctaaagtgc tgggattaca 2040  
ggcatgagcc accgtgcca accactttat ttatttttta tttttatntt taaatttcag 2100  
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cacctgaca gggcaaacag acaacctaca gaatgggagg aaatttttgc aatctattca 3300  
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# FIGURE 16C

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atacatttaa aaccctcact aaaggatcag ggaccatcat ggaagaggag gaaacatgaa 5040  
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## FIGURE 16D

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gttctaggaa gactgacagt ttgggtctgt gtcattgccc aaatctcatg ttaaattgta 5220  
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gctttgcctt ctaccataag taaaagcccc ctgaggcctc cccagaagca gatgccacca 5460  
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# FIGURE 16E

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## FIGURE 16F

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# FIGURE 16G

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# FIGURE 16H

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gaggtgccaacagggcaaggcggggctctggagaatgaaggctttatagggtcctcag12000  
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# FIGURE 17

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# FIGURE 18

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tgcaagacac tgcccatgcc aatcatcctg aaaagcagct ataaaaagca ggaagctact 420  
ctgcaccttg tcagtgaggt ccagatacct acag 454

aaagcttccac aagtgcattt agcctctcca gtattgctga tgaatccaca gttcagggttc 60  
aatggcggttc aaaacttgat caaaaatgac cagactttat attcttacac caacatctat 120  
ctgattggag gaatggataa tagtcatcat gtttaaacad ctaccattcc agttaagaaa 180  
atatgatagc atcttggttct tagtcttttt cttaataggg acataaagcc cacaaataaa 240  
aatatgcctg aagaatggga caggcattgg gcattgtcca tgccatagtaa agtactccaa 300  
gaacctatct gtatactaga tgacacaatg tcaatgtctg tgtacaactg ccaactggga 360  
tgcaagacac tgcccatgcc aatcatcctg aaaagcagct ataaaaagca ggaagctact 420  
ctgcaccttg tcagtgaggt ccagatacct acag 454

g	atg	acc	ggc	tca	acc	atc	gcg	ccc	aca	acg	gac	tat	cgc	aac	acc	act	49
Met	Thr	Gly	Ser	Thr	Ile	Ala	Pro	Thr	Thr	Asp	Tyr	Arg	Asn	Thr	Thr		
1				5				10						15			
gct	acc	gga	cta	aca	tct	gcc	cta	aat	tta	ccc	caa	ggt	cat	gcc	ttt	97	
Ala	Thr	Gly	Leu	Thr	Ser	Ala	Leu	Asn	Leu	Pro	Gln	Val	His	Ala	Phe		
		20						25					30				
gtc	aat	gac	tgg	gcg	agc	ttg	gac	atg	tgg	tgg	ttt	tcc	ata	gcg	ctt	145	
Val	Asn	Asp	Trp	Ala	Ser	Leu	Asp	Met	Trp	Trp	Phe	Ser	Ile	Ala	Leu		
		35					40					45					
atg	ttt	ggt	tgc	ctt	att	att	atg	tgg	ctt	att	tgt	tgc	cta	aag	cgc	193	
Met	Phe	Val	Cys	Leu	Ile	Ile	Met	Trp	Leu	Ile	Cys	Cys	Leu	Lys	Arg		
	50					55					60						
aga	cgc	gcc	aga	ccc	ccc	atc	tat	agg	cct	atc	att	gtg	ctc	aac	cca	241	
Arg	Arg	Ala	Arg	Pro	Pro	Ile	Tyr	Arg	Pro	Ile	Ile	Val	Leu	Asn	Pro		
65					70				75						80		
cac	aat	gaa	aaa	att	cat	aga	ttg	gac	ggt	ctg	aaa	cca	tgt	tct	ctt	289	
His	Asn	Glu	Lys	Ile	His	Arg	Leu	Asp	Gly	Leu	Lys	Pro	Cys	Ser	Leu		
				85					90					95			
ctt	tta	cag	tat	gat	taa											307	
Leu	Leu	Gln	Tyr	Asp													
				100													

**FIGURE 19**